



# General Assembly

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**Committee on the Peaceful  
Uses of Outer Space  
Scientific and Technical Subcommittee  
Fifty-sixth session  
Vienna, 11–22 February 2019**

## **Draft report**

### **I. Introduction**

1. The Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space held its fifty-sixth session at the United Nations Office at Vienna from 11 to 22 February 2019, with Pontsho Maruping (South Africa) as Chair.
2. The Subcommittee held [...] meetings.

#### **A. Attendance**

3. Representatives of the following [...] States members of the Committee attended the session: Albania, Algeria, Argentina, Armenia, Australia, Austria, Belarus, Belgium, Bolivia (Plurinational State of), Brazil, Bulgaria, Burkina Faso, Canada, Chile, China, Colombia, Costa Rica, Cuba, Cyprus, Czechia, Denmark, Ecuador, Egypt, El Salvador, Finland, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kenya, Libya, Luxembourg, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Norway, Oman, Pakistan, Paraguay, Philippines, Poland, Portugal, Qatar, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Slovakia, South Africa, Spain, Sweden, Switzerland, Syrian Arab Republic, Thailand, Turkey, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela (Bolivarian Republic of) and Viet Nam.
4. At its 895th meeting, on 11 February, the Subcommittee decided to invite observers for Croatia, the Dominican Republic and Malta, at their request, to attend the session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of the Committee concerning status.
5. At the same meeting, the Subcommittee decided to invite the observer for the Sovereign Order of Malta, at its request, to attend the session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of the Committee concerning status.
6. Observers for the Economic and Social Commission for Asia and the Pacific, the Food and Agriculture Organization of the United Nations, the International



Atomic Energy Agency, the International Civil Aviation Organization (ICAO), the International Telecommunication Union (ITU), the World Food Programme (WFP) and the World Meteorological Organization (WMO) attended the session.

7. The session was attended by the observer of the European Union as permanent observer of the Committee and in accordance with General Assembly resolution 65/276 of 2011.

8. The session was attended by observers for the following intergovernmental organizations with permanent observer status with the Committee: Asia-Pacific Space Cooperation Organization (APSCO), European Southern Observatory, European Space Agency (ESA), International Mobile Satellite Organization, Inter-Islamic Network on Space Sciences and Technology and International Telecommunications Satellite Organization.

9. The session was attended by observers for the International Asteroid Warning Network (IAWN) and the Space Mission Planning Advisory Group (SMPAG), in accordance with the agreement of the Subcommittee at its fifty-third session ([A/AC.105/1109](#), para. 182).

10. The session was attended by observers for the following non-governmental organizations having permanent observer status with the Committee: Association of Space Explorers (ASE), CANEUS International, Committee on Space Research (COSPAR), Eurisy, European Space Policy Institute (ESPI), For All Moonkind, International Academy of Astronautics (IAA), International Association for the Advancement of Space Safety, International Organization for Standardization (ISO), International Society for Photogrammetry and Remote Sensing, International Space University (ISU), Scientific Committee on Solar-Terrestrial Physics (SCOSTEP), Secure World Foundation, Space Generation Advisory Council (SGAC), University Space Engineering Consortium-Global (UNISEC-Global) and World Space Week Association (WSWA).

11. A list of the representatives of States, United Nations entities and other international organizations attending the session is contained in [A/AC.105/C.1/2019/INF/\[...\]](#).

## **B. Adoption of the agenda**

12. At its 895th meeting, on 11 February, the Subcommittee adopted the following agenda:

1. Adoption of the agenda.
2. Statement by the Chair.
3. General exchange of views and introduction of reports submitted on national activities.
4. United Nations Programme on Space Applications.
5. Space technology for sustainable socioeconomic development.
6. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment.
7. Space debris.
8. Space-system-based disaster management support.
9. Recent developments in global navigation satellite systems.
10. Space weather.
11. Near-Earth objects.
12. Long-term sustainability of outer space activities.

13. Use of nuclear power sources in outer space.
14. Space and global health.
15. Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union.
16. Draft provisional agenda for the fifty-seventh session of the Scientific and Technical Subcommittee.
17. Report to the Committee on the Peaceful Uses of Outer Space.

### C. General statements

13. Statements were made by representatives of the following member States during the general exchange of views: Algeria, Argentina, Armenia, Austria, Belarus, Brazil, Canada, Chile, China, Costa Rica, Cuba, Cyprus, Czechia, Egypt, Finland, France, Germany, Greece, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Kenya, Libya, Luxembourg, Mexico, New Zealand, Nigeria, Norway, Pakistan, Paraguay, Poland, Republic of Korea, Romania, Russian Federation, Saudi Arabia, South Africa, Switzerland, Thailand, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States and Viet Nam. Statements were also made by the representative of Egypt on behalf of the Group of 77 and China, and by the representative of Chile on behalf of the Group of Latin American and Caribbean States. The observer for the European Union made a statement. The observers for ESCAP and WMO also made statements. Further statements were made by the observers for APSCO, CANEUS International, Eurisy, For All Moonkind, IAF, ISNET, ISPRS, ISU, SGAC, SWF, UNISEC-Global and WSWA. The observer for the African Union Commission made a statement.

14. The Subcommittee heard the following scientific and technical presentations:
- (a) “CSES mission: Italy and China in space”, by the representative of Italy;
  - (b) “Implementation of the United States space traffic management policy”, by the representative of the United States;
  - (c) “The introduction of the Chang’e 4 mission and the vision for future Chinese lunar exploration activities”, by the representative of China;
  - (d) “Implementation of the Asia-Pacific space applications plan of action (2018–2030)”, by the observer for ESCAP;
  - (e) “HEPTA-Sat Program: international knowledge and technology transfer for CubeSat development”, by the observer for UNISEC-Global;
  - (f) “Introduction to the United Nations/China Forum on Space Solutions: realizing the Sustainable Development Goals”, by the representative of China;
  - (g) “Space-aided climate change adaptation”, by the observer for ISU;
  - (h) “Outcomes of the Space Generation Congress 2018”, by the observer for SGAC;
  - (i) “Subglacial liquid water on Mars”, by the representative of Italy;
  - (j) “Recent Indian space missions: update as of February 2019”, by the representative of India;
  - (k) “Expanding partnerships in space exploration: developing technology for space habitation and its applications to Earth society”, by the representative of Japan;

- (l) “Korea Space Launch Vehicle 2: on the result of a test launch”, by the representative of the Republic of Korea;
- (m) “Moon village design studio”, by the representatives of Austria;
- (n) “The pioneering properties of the United Nations/Japan Post-Graduate Study on Nanosatellite Technologies (PNST) Fellowship Programme and of Kyutech’s BIRDS programme”, by the representative of Japan;
- (o) “Mars debate”, by the representative of Sweden;
- (p) “India’s Human Spaceflight Programme: GAGANYAAN”, by the representative of India;
- (q) “HABIT”, by the representative of Sweden;
- (r) “Student space activities at the Warsaw University of Technology and the student satellite PW-Sat2”, by the representative of Poland;
- (s) “UNNATI: India’s capacity-building programme on nanosatellite development”, by the representative of India;
- (t) “Opportunities for science experiments in the fourth stage of India’s Polar Satellite Launch Vehicle (PSLV)”, by the representative of India;
- (u) “Outcomes of the space generation workshops 2018”, by the observer for SGAC;
- (v) “Polish contribution to the NASA InSight mission to Mars”, by the representative of Poland;
- (w) “Opportunities for atmospheric studies through sounding rockets”, by the representative of India;
- (x) “Artificial Intelligence for Good Global Summit 2018: the eye in the sky – space, and satellites”, by the observer for ITU.

15. At the 895th meeting, on 11 February, the Subcommittee observed a minute of silence to mark the passing of Christine Stix-Hackl of Austria and Georgiy Barsegov of the Russian Federation, who had been long-standing contributors to the work of the Committee and its subcommittees.

16. Also at the 895th meeting, on 11 February, the Chair of the Subcommittee made a statement outlining the work of the Subcommittee at its fifty-sixth session. She noted that, with the remarkable success of UNISPACE+50 in 2018, with its high-level segment held on 20 and 21 June and the adoption by the General Assembly on 26 October of its resolution 73/6, the Committee had set out on the road towards a “Space2030” agenda and an associated implementation plan. She stressed that space science and technology were essential drivers for opening up new domains in advancing global development efforts, that enhanced capacity-building was essential in that respect and that a stronger partnership should be promoted between spacefaring and emerging space nations. She underlined that it was the special and important task of the Subcommittee to consider many areas of space science and technology and their applications, as well as to take responsibility for examining challenges to space operations. She emphasized that regional and interregional cooperation was essential to strengthening the peaceful uses of outer space and recognized the importance of the African Space Policy and Strategy, adopted by the African Union. She also reiterated that the African continent could benefit greatly from strengthened space policy, capabilities and infrastructure.

17. At the same meeting, the Director of the Office for Outer Space Affairs made a statement in which she reviewed the work done by the Office since the fifty-fifth session of the Subcommittee, including the Office’s contribution to the achievement of the Sustainable Development Goals and the growing working alliances with representatives of governmental, intergovernmental and non-governmental organizations and entities, as well as of industry and the private

sector. She introduced the current priorities in the work of the Office, which would be implemented following a conceptual approach aimed at achieving gender equality in the space sector. Furthermore, the Director stressed that the global space sector continued to evolve rapidly in all its political, legal and technical aspects and that, in that connection, the United Nations needed to keep pace.

18. The Subcommittee noted with satisfaction the information provided by the Director of the Office with regard to the presentation by the Secretary-General, in 2018, of three key strategy documents, in which he had clearly emphasized the contribution of space and the role of the Office. Those were the Secretary-General's strategy on new technologies; *Securing our Common Future: An Agenda for Disarmament*; and "Youth 2030: Working with and for young people – the United Nations youth strategy". In that regard, the Subcommittee noted the plans specifying how the Office would contribute into the implementation of those strategic initiatives.

19. The Subcommittee reiterated that there was a need for gender equality and the empowerment of women, and noted that the 2030 Agenda for Sustainable Development had created additional momentum and contained clear targets in that regard. The Subcommittee also noted the development by the Office for Outer Space Affairs of the "Space for women" initiative to promote gender empowerment and gender equality not only within the United Nations but also in the space sector.

20. The Subcommittee noted the work of the Office to raise awareness of fundamental space science research and space exploration efforts among the wider space community. In particular, the Subcommittee heard information about the cooperation established between the Office and COSPAR, and about the selection by the COSPAR Bureau of members of the Office's staff with the relevant competence to serve as Vice-Chairs of the Panel on Planetary Protection and the Panel on Space Weather.

21. The Subcommittee noted that 20 July 2019 would mark the 50th anniversary of a momentous event, namely the first landing by humans on the Moon as part of the NASA Apollo 11 lunar mission.

22. The Subcommittee congratulated Member States from the African continent on the establishment of the African Space Agency, to be hosted by Egypt. It noted that the Agency would serve as a platform for transcontinental cooperation and create an opportunity for all African States to reap the common benefits emanating from the space field.

23. The Subcommittee agreed that the enlargement of the Committee in previous years demonstrated the confidence that the international community attached to the multilateral system, and that it was testimony to the increasing importance that States Members of the United Nations assigned to it as a unique, intergovernmental platform.

24. The Subcommittee agreed that it, together with the Committee and the Legal Subcommittee, and with the support of the Office for Outer Space Affairs, remained a unique international forum tasked with promoting international cooperation in the exploration and peaceful use of outer space and offering an appropriate environment to discuss matters that had a great impact on the development of States for the betterment of humankind.

25. The Subcommittee recalled the success of UNISPACE+50, which had served to stress the importance of strengthening international cooperation in the exploration and use of outer space for peaceful purposes. The Subcommittee also recalled the continued relevance of the Committee as a unique platform for enhancing the global governance of outer space activities. The Subcommittee further recalled that UNISPACE+50 had been effective in raising awareness of the impact of space science and technology on sustainable development and reaffirmed that the quality of life on Earth was becoming increasingly dependent on activities carried out in outer space.

26. The Subcommittee agreed that space activities had substantial potential for innovation and economic advancement, and that such potential could benefit humankind by contributing to the resolution of major global challenges such as the impact of climate change, disaster management, food security, environmental protection, efficient resource management and transport development. In that respect, the Subcommittee agreed that the work relating to the “Space2030” agenda and its implementation plan would help in the mobilization of space activities for the implementation of the 2030 Agenda on Sustainable Development and the Sustainable Development Goals and targets contained therein.

27. Some delegations expressed the view that, to achieve its main objectives, it was important for the Subcommittee to concentrate its work on areas such as the building and promotion of technological capacities, the transfer of technology, the prevention and mitigation of natural disasters, and scientific and technological research in developing countries within the framework of international cooperation. The delegations expressing that view were also of the view that space technology applications should translate into concrete benefits for developing countries; such benefits could be achieved by promoting the transfer of technology, by building capacity and providing access to technology. Therefore, the Office for Outer Space Affairs and States members of the Committee should work closely together to provide greater support to the enhancement of both North-South and South-South cooperation and thereby facilitate the transfer of technology among States. The delegations expressing that view further expressed the view that technology could be transferred by creating more opportunities for enhanced academic linkages, long-term fellowships and collaboration among international, national and regional academic and research centres and institutions working on space matters.

28. Some delegations expressed the view that international cooperation should be an essential component of peaceful activities in outer space, in particular in developing countries, and that international cooperation was essential to pursuing the sustainability of space activities as the common objective of all. In that connection, international cooperation in the scientific and technical aspects of the exploration and use of outer space for peaceful purposes would contribute to, among other things, the development of common understanding and to the strengthening of friendly relations among Member States.

29. The view was expressed that it was a regrettable fact that, in matters relating to space activities, it was frequently seen that a number of States preferred unilateral acts to international regulation. Such acts had the potential to create conflicts among space actors and thus affect security in outer space. In that connection, the absence of internationally agreed rules on a number of important aspects, such as safety in space operations, the monitoring of objects and events in outer space, space traffic management and the utilization of mineral resources, continued to have a negative effect on the preservation of outer space as a functionally stable and safe environment.

30. Some delegations expressed the view that continuous interaction between the Scientific and Technical Subcommittee and the Legal Subcommittee was important to promote the development of binding international standards and other regulatory mechanisms that addressed current challenges. In that regard, work under thematic priority 2 of UNISPACE+50 could enrich the work of the Committee within the framework of the “Space2030” agenda.

31. Some delegations recalled the established principles related to outer space activities, including the principle of exploration and use of outer space on the basis of equality, the principle of non-appropriation of outer space, including the Moon and other celestial bodies, and the peaceful use of outer space.

32. The view was expressed that the principles of non-intervention and non-interference in the activities of States in exploring and utilizing outer space for peaceful purposes should be fully observed.

33. Some delegations expressed the view that the long-term sustainability of space activities was becoming more topical than ever in view of various factors, including the wider involvement in space activities of various actors and the strategic importance of space for the economies of States. In that respect it was extremely important to ensure that all participants in space activities followed commonly agreed rules and had free and fair access to outer space.

34. Some delegations expressed the view that space exploration activities should be conducted with due regard to international peace and security and that outer space should never become a theatre of war. The delegations expressing that view were also of the view that States should commit in earnest to the prevention of an arms race and refrain from placing and using weapons in outer space.

35. Some delegations recognized the benefits derived from the sustainable and exclusively peaceful uses of outer space and reaffirmed that such uses were essential for present and future generations. In that connection, those delegations noted that the international community should seek ways and means to avoid an arms race and should consider the broader perspective of space security and associated matters.

36. The view was expressed that the establishment of the United Nations Group of Governmental Experts on the Prevention of an Arms Race in Outer Space in accordance with General Assembly resolution 72/250, entitled “Further practical measures for the prevention of an arms race in outer space”, could be a positive outcome contributing to prevention of an arms race in outer space and keeping outer space free from weapons.

37. The Subcommittee expressed its gratitude to the organizers of the following events, held on the margins of the current session of the Subcommittee:

(a) Lunch-time high-level panel discussion celebrating the International Day of Women and Girls in Science, organized by the Office for Outer Space Affairs;

(b) Side event entitled “Implementation of the long-term sustainability guidelines: experiences and challenges”, organized by Austria, Brazil and South Africa, and supported by the Secure World Foundation;

(c) Side event entitled “Space as an enabler”, hosted by the Permanent Mission of Romania with the support of the Romanian Space Agency (ROSA);

(d) Side event entitled “The way ahead towards operational space traffic management”, organized by ESPI;

(e) Side event entitled “Office for Outer Space Affairs/Japan cooperation on capacity-building initiatives: the example of Kenya through KiboCube and the PNST programme”, organized by Japan and the Office for Outer Space Affairs;

(f) Side event entitled “Space information corridor: win-win cooperation”, organized by China;

(g) Side event entitled “Open universe”, organized by Brazil, Italy and Uruguay;

(h) Side event entitled “Preparing for the future of work in the aerospace sector: the challenges of enhanced diversity”, co-organized by ESA and ESPI;

(i) Side event screening “Apollo 11: A cinematic event 50 years in the making” organized by the United States;

(j) The exhibit “The grand tour”, organized by the Permanent Mission of the United States.

## **D. National reports**

38. The Subcommittee took note with appreciation of the reports by Member States ([A/AC.105/1189](#), [A/AC.105/1189/Add.1](#) and [A/AC.105/1189/Add.2](#)) and of the

conference room papers (A/AC.105/C.1/2019/CRP.3, CRP.5 and CRP.6) submitted for its consideration under agenda item 4, entitled “General exchange of views and introduction of reports submitted on national activities”. The Subcommittee recommended that the Secretariat continue to invite Member States to submit annual reports on their space activities.

### **E. Summary of the work of the Working Group on the “Space2030” Agenda of the Committee on the Peaceful Uses of Outer Space**

39. In accordance with the decision of the Committee on the Peaceful Uses of Outer Space, made in 2018 at its sixty-first session, the Working Group on the “Space2030” Agenda has been established under a new agenda item of the Committee entitled “‘Space2030’ agenda”, which will remain on the Committee’s agenda until the sixty-third session of the Committee, in 2020 (A/73/20, paras. 358–364).

40. The Working Group held its meetings during the fifty-sixth session of the Scientific and Technical Subcommittee, in accordance with the mandate given by the Committee. The summary of those meetings, together with the workplan and method of work agreed by the Working Group at its intersessional meeting held from 7 to 11 October 2018, is included in annex [...] to the present report.

### **F. Symposium**

41. In accordance with the agreement reached by the Subcommittee at its forty-fourth session, in 2007 (A/AC.105/890, annex I, para. 24), and by the Committee at its sixty-first session, in 2018 (A/73/20, para. 218), a symposium organized by COSPAR on the topic “Space weather and small satellites” was held on 11 February 2019.

42. The symposium was chaired by Hermann Opgenoorth of the University of Umea, Sweden, who made introductory remarks and delivered a presentation on behalf of Masha Kuznetsova of NASA, United States. The other speakers were James Spann of NASA; Ian R. Mann of the University of Alberta, Canada; Clezio Marcos De Nardin of INPE, Brazil; Mamoru Ishii of the National Institute of Information and Communications Technology, Japan; Christina Plainaki and the ASI Space Weather Working Group, Italy; Mario M. Bisi of RAL Space, UKRI-STFC, United Kingdom; and Sharafat Gadimova of the Office for Outer Space Affairs.

43. The Subcommittee noted with satisfaction that the symposium had contributed to raising awareness on the use and application of small satellites to further advance the technical knowledge of and scientific research on space weather events.

### **G. Adoption of the report of the Scientific and Technical Subcommittee**

44. After considering the items before it, the Subcommittee, at its [...] meeting, on [...] February 2019, adopted its report to the Committee on the Peaceful Uses of Outer Space, containing its views and recommendations, as set out in the paragraphs below.